CLAIMS

1) A method intended for gradual deformation of a representation or realization, generated by sequential simulation, of a not necessarily Gaussian stochastic model of a physical quantity z in a heterogeneous medium such as an underground zone, in order to

5   constrain it to a set of data collected in the medium by means of previous measurements and observations, relative to the state or the structure thereof, characterized in that it comprises applying a stochastic model gradual deformation algorithm to a Gaussian vector (Y) with N mutually independent variables that is connected to a uniform vector U with N mutually independent uniform variables by a Gaussian distribution function

10   (G), so as to build a chain of realizations u(t) of vector U, and using these realizations u(t) to generate realizations z(t) of this physical quantity that are adjusted to the data.

2) A method as claimed in claim 1, characterized in that a chain of realizations u(t) of vector (U) is defined from a linear combination of realizations of Gaussian vector (Y) whose combination coefficients are such that the sum of their squares is one.

15   3) A method as claimed in any one of claims 1 or 2, comprising gradual deformation of the model representative of the heterogeneous medium simultaneously in relation to the structural parameters and to the random numbers.

4) A method as claimed in any one of claims 1 or 2, comprising separate gradual deformation of a number n of parts of the model representative of the heterogeneous

20   medium while preserving continuity between these n parts of the model by subdividing the uniform vector into n mutually independent subvectors.